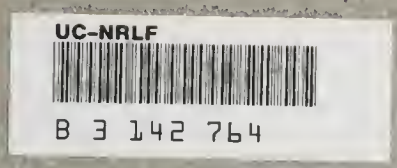
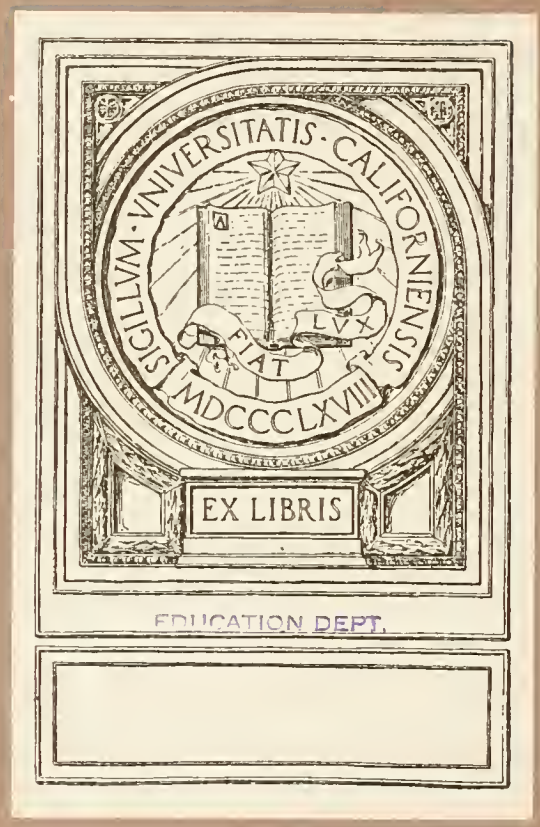
LB
6
S647





EDUCATION DEPT.

Minimum essentials in an adequate physical education program for high schools

By

Francis Ferdinand Smith

A. B. (Brigham Young University) 1919

THESIS

Submitted in partial satisfaction of the requirements

for the degree of

MASTER OF ARTS

in

Education

in the

GRADUATE DIVISION

of the

UNIVERSITY OF CALIFORNIA

Approved _____
Instructor in Charge

Deposited in the University Library _____
Date Librarian

LB6
S647

EDUCATION DEPT.

OUTLINE

I. The Problem

A. Analysis

1. Statement

2. Limitation

B. Definition of terms

1. "High Schools"

2. "Physical Education"

3. An Adequate Program

4. Minimum Essentials

II. Setting up the Objectives

A. Objectives of secondary education

1. Report of the National Committee on Secondary Education

2. Report of the N. E. A. Committee on Physical Education

3. Minimum Essentials

1. Fixing the responsibility of physical education for its part in the secondary education program; i. e., setting up specifically the complete objectives of physical education.

III. Realization of the objectives

A. The program

1. Content

a. Medical inspection

i. History of medical inspection

ii. Present status

iii. Guiding principles

iv. High school plant

v. Inspection of teachers and janitors

vi. Healthful home environment

vii. Inspection of the pupil

viii. Making out the pupil's regular program

ix. Period examinations

x. Daily inspection by class-room teacher

xi. Metting objections to this program

b. Physical activity--exercise

i. Definition of the term physical activity

ii. Minimum essentials in space and equipment

iii. Athletics vs. physical activity for all

iv. Essentials features of the program

(a) A two-minute between-class relief period

(b) Sixty minutes a week for corrective work

(c) Special classes for defectives

(d) Play periods

(e) After-school activities

(f) Cooperation with outside agencies

c. Hygiene and Sanitation

i. Personal

ii. School

iii. Home

iv. Community

d. Civic and Social Training

i. Responsibility of physical education in this respect

ii. Character traits to be developed

iii. Measuring progress

2. Administration

a. What the administration of this program means

b. Minimum requirements

i. A new type of head of department

ii. Type of teacher required

iii. School physician

iv. Nurses

c. Carrying out the program

i. Daily inspection for contagious diseases

ii. Examination, by nurse, of segregated cases

iii. Yearly examination by school physician

iv. Regular physical examination by physical education staff

v. Securing cooperation of class-room teachers

vi. Assignment to classes on basis of diagnosis

vii. Faculty control of sports

viii. Cooperation with home and community

3. Costs

a. Minimum requirements

b. Detailed analysis

i. Head of department

ii. Regular teachers

iii. School physicians

iv. School nurses

v. Physical education plant

c. Argument for these costs

IV. Summary

V. Bibliography

As indicated by the title, the development of this thesis must necessarily be comprehensive rather than intensive. Since it is to cover the whole field of physical education for high schools, no one problem can be dealt with in minute detail--the purpose of the paper is rather to bring together the broad general principles which should form the basis of a good physical education program for high schools. Enough of detail, however, will be used to make the various phases of the problem clear, specific, and practical. Whenever it is impossible, because of the scope of the problem, to use that amount of detail which would most completely develop an essential point, definite references will be made to articles or books in which that point has been covered fully. Thus it is hoped to make a unified and condensed report of what might otherwise seem to be too general a problem for a thesis.

Nor will the author indulge in much theorizing; individual problems considered in the thesis have been developed by individual educators or by city, state, or national systems of physical education, both by careful investigation and by practice. But while some city, district, state, or national systems are strong on one point, some on another,

no one system seems to have been able to combine in one place all the requisites of a first-class program of physical education--a program that will care for, in so far as it is reasonable and practicable, the complete physical needs of the high school pupil. This was recognized by the Commission on the Reorganization of Secondary Education. The report says:

". . . thus far no city is known to the committee to have a good working coordination of the various problems relating to the health of the pupils. Various cities have specialized on different phases. Some cities have an administrative plan which will enable them to work out the medical, hygienic, and physical activity aspects of the problem, but apparently have no regular examinations for determining the health of the central nervous system, nor for finding the type of ability of the pupil. Many cities do not seem to know exactly what they should seek to secure through a medical or physical examination, and do not use the results obtained by either." 1

It will be seen, then, that the purpose of this thesis

1 Physical Education in Secondary Schools, Bul., 1917, No. 50

is to collect into one paper, from every possible source, the best that has been developed in physical educational theory and practice, and with this material to set up a high school program that will take the responsibility for supervising, more or less closely, the entire physical needs of the high school pupil, at the same time keeping in mind the social and civic needs of the embryonic citizen. Broadly speaking, this is the problem of setting up the minimum essentials of an adequate physical education program for high schools.

An analysis of the terms used will help to a clearer understanding of all that is involved in the problem. ~~By~~ The term "high schools" will have to be somewhat broadly interpreted. The old eight-four plan has not yet been replaced by the six-three-three plan--from thisstandpoint it would probably be better to think of the high school age as being from twelve to eighteen years. Again, large city high schools and rural high schools must be taken into consideration. But from whatever angle considered, the guiding principles are the same; namely, that the program must be made to fit the needs, capacities, and interests of the high school pupil, and that we can only claim to have ful-

filled the requirements of the minimum essentials, whether in junior or senior high school, in city or in rural section, when we have done everything which good business sense and sound educational theory and practice will sanction to bring to fullest development all those latent powers, physical or otherwise, which it is possible for a physical education program to develop. The emphasis will thus be upon the guiding principles of any physical education for high schools rather than upon fixing a program for some particular high school or type of high school. Some attention, however, will be paid to types when the section on administration is reached.

The term "physical education" is variously interpreted. In some schools it means military drill, setting-up exercises, Swedish gymnastics, German gymnastics, German-American gymnastics, playground activity, indoor and outdoor athletics, or supervision of out-of-school health activities; in other schools it means a combination of several or all of these, with perhaps the addition of instruction in hygiene, medical inspection, or cooperation with a planned course of study for citizenship training. In this thesis all of these will be included in the term, as different phases of physical education. They will be considered as

tools which may or may not be used according to the needs, capacities, and interests of the high school pupil. Just as in a doctor's kit are to found various instruments, each hav ing its use and brought out as needed, so in the physical education program are these different instruments, each with a purpose of its own, but all having the common function of developing clean, strong, healthy citizens, good citizens right now in the high school and good citizens for the future. It must be emphasized, then, that no one phase of physical education, considered in this broad sense, is sufficient, nor must all phases be given like significance. Any one or all are to be used when needed, but one may be brought into use more than another. We must understand just what is the specific function of each so that it may be used intelligently.

By "minimum essentials" is meant those phases of physical education without which it is felt that the best interests of the high school pupil would not be fully served. Some phases might be left out---are being left out--but with out them it is not possible to get the maximum values out of a physical education program. It would be possible to grow

a fairly good crop of wheat without using fertilizer, but the size and quality of the crop could be considerably increased by the intelligent application of fertilizer. It is not necessary to talk of the necessity of air, water, climate, soil, etc.--without these it would be impossible to raise a crop at all. These must be supplied, of course, but what is wanted is to bring into the raising of the crop, in addition to the natural factors, every other possible factor for increasing the size and quality of the crop, at a profit. Food, air, sunshine, clothing, exercise, all are necessary for raising a citizen crop, but it is possible, by improving the quality and intelligently administering the right quantities, to turn out a type of citizenship far superior to that turned out by unregulated natural conditions. When we have brought every possible factor into the raising of the best possible crop of high school citizens at a profit, then shall we have found the minimum essentials. Then, too, will our program be adequate. It cannot be considered adequate if we increase only the amount of exercise any more than a mere increase in the amount of water can be considered sufficient to insure the maximum wheat crop. Every possible factor that can profitably be used must be studied

intelligently and made to yield its maximum contribution toward developing the maximum result in citizenship if the program is to be considered adequate.

What, then, are the guiding principles of physical education? They must be determined by the principles of secondary education in general and by the particular contribution which physical education as a cooperative agency can make toward a realization of these general principles. The main objectives of secondary education, as given by the national committee on secondary education, are training for: [1]

1. Health
2. Command of fundamental processes--reading, writing, arithmetical computations, oral and written expression.
3. Worthy home membership
4. A vocation
5. Citizenship--activity in civic groups
6. Worthy use of leisure time
7. Ethical character

These objectives are analyzed in the pamphlet from which they are taken; it is not the purpose of this paper to anal-

1 Cardinal Principles of Secondary Education, Bul. 1918, No. 35

yze them. It is our purpose, though, to discover for which of these objectives physical education can be held primarily responsible and to which it may contribute as a cooperating agency in secondary education. There can be little doubt that the preservation and development of health is physical education's first task. As a cooperative agency, it may be expected to contribute, either directly or indirectly, to the development of worthy home membership, to citizenship training, to training in worthy use of leisure time, and to the development of ethical character. It is not assumed, by any means, that merely exposing the student to physical education will automatically develop or aid in the development of these objectives. Whether or not physical education can make these contributions will depend upon how clearly the leaders in the field see its responsibility as an effective cooperative agency and how wisely they plan to make it render a maximum contribution. In general, the minimum contributions which physical education ought to make to these five main objectives are:

I. Health--physical education's first task.

   A. Through a carefully-planned system of medical inspection and health supervision.

B. Through an intelligent use of types of physical activity which will meet the needs, fit the capacities, and stimulate the interest of all.

C. Through instruction in practical hygiene--personal, home, and community

D. Through cooperation with other school departments and with home and community agencies.

E. Through a system of follow-up which will aid the conversion of health ideas, and ideals into habits.

II. Worthy home membership

A. Through a gradual development of the spirit of joyous, healthful play in the younger members of family, in the hope that this spirit will soon permeate the whole family group. We need more of the type of family play found in England.

B. By instilling health ideals and habits in the family group.

C. Through improving the health conditions of the home and thus lessening the pain, squalor, poverty, and attendant undesirable emotional states brought about by disease and death.

D. Through an increase in the confidence and optimism which the success resulting from vibrant, buoyant health ought to bring to the family group, individually and collectively.

III. Citizenship

A. By learning the value of group cooperation, team play, etc.

B. By acquiring ideals of fair play, good sportsmanship, courtesy, honesty, obedience to properly-constituted authority, cleanness of speech and action, and self-restraint.

C. By developing habits of cleanliness in every respect, loyalty to institutions, leaders, and associates, self-control, tolerance, adaptability, initiative, leadership, alertness, intense application, self-sacrifice, respect for the rights of others, etc.

IV. Worthy use of leisure time

A. By discovering and participating in sports, throughout life, which will not only furnish relaxation, diversion, and amusement, but will replenish and add to the stock of surplus energy which is so vital to success in every field of human endeavor.

B. By creating joyful physical activities, friendships, and associations which will add much to the sum total of joy to be gained from healthful, worthy leisure-time activity.

V. Ethical character

A. Character qualities have already been indicated under II above, citizenship. In fact, all these values of worthy home membership, worthy use of leisure time, and worthy home membership, might well be classed under the general head of citizenship and will be so handled when these values are taken up later.

Having discussed, in general, the guiding principles for establishing a program and having fixed the contributions which physical education must make to the secondary education program, the next task is to outline andto discuss in detail the minimum essentials. The program will be discussed under the general heads of content, administration, and costed. Under the head of content will be the sub-topics of medical inspection, types of physical activity, hygiene instruction, and citizenship values. The heading administration will carry with it the sub-titles of the school plant--briefly, the whole plant as it affects the pupil's

health, and more specifically the physical education plant, personnel of the teaching staff, and cooperation with school and outside agencies. Under costs, an effort will be made to fix the reasonable minimum costs of carrying out the various phases of the program.

This program follows very closely, in principle, that outlined by the N. E. A. Commission on Reorganization in its report on Physical Education in Secondary Schools. 1 Briefly, the important major principles are:

I. A careful health examination which should include
   A. Medical inspection
   B. Mental examination
   C. Physical examination
II. A healthful environment in home and school
III. Instruction in health problems
IV. Physical activities
   A. Equipment
   B. Time allotment
   C. Kind of exercise
      1. Physiological type
      2. Character-building activities

1 Physical Education in Secondary Schools, Bul. 1917, No. 50

CONTENT

Medical Inspection

In establishing medical inspection as a minimum essential in a high school program, it may be well to know how far it has been and is now considered an essential to the success of any school program. While it is a comparatively new movement, it has been established long enough and widely enough to show its worth to any school system. Following is a brief summary of its introduction into foreign countries: 1

Date	Foreign Countries	American States	Am. Cities
1871	Russia		
1873	Austria		
1874	Belgium		
1879	France		
1885	Norway		
1889	Germany		
1894			Boston
1895			Chicago
1896	Denmark		
1897			New York

1 Medical Inspection of Schools, Gulick and Ayers

1898-----Japan----------Philadelphia

1899----------Connecticut

1903----------New Jersey

1906------Australia----------Massachusetts

1907------Great Britain

This is only a partial list; the growth and present status of medical inspection in America is shown by the following quotation: 1

"Medical inspection is provided for by law in something less than half of the American states. Regularly organized systems of medical inspection are in force in something less than half of the American cities, while a beginning has been made in nearly three-fourths of them. About four-fifths of 44 cities having systems of medical inspection employ school physicians, almost a quarter of them employ school nurses, and about one city in seven school dentists are employed."

The first principle upon which medical inspection is named as a minimum essential is that in the process of educating the child we must make sure that our program does not actually do him harm by aggravating physical defects or by actually creating such defects through harmful school equipment or through allowing him to get into unhealthful habits. The second principle is that before we outline for the high

1 Medical Inspection of Schools, Gulick and Ayers

school pupil a program of school activity and assume to advise him relative to his health needs, we should know him as thoroughly as possible. We should know whether he is normal enough to follow a regular program, or because of physical or other defects, he will need to be treated as a special case. From whatever angle we consider it, our task as teachers is to increase in every possible way the efficiency of the growing citizen. We must, then, not only reduce harmful influences to a minimum, but must, on the positive side, make every reasonable provision for making the pupil's environment conducive to health so that he may leave the high school as physically and mentally efficient as it is possible for the high school to makehim. What can be considered minimum in accomplishing these two main results?

The first requisite of a good health program for high schools is the construction of a high school plant which will be conducive to the health of the high school pupils. Many of our present buildings, with their inadequate lighting, poor ventilation and heating, illy-adjusted seats, insufficient drinking and toilet facilities, and antiquated janitorial service, not only fail to keep the health of the

pupil at par, but actually impair his health. School buildings should be constructed by school architects who understand the problems peculiar to school building construction. Studies like those by Strayer and Englehardt have established definite norms by which to judge the efficiency of a school plant; we ought to insist that buildings be constructed along the lines suggested by these standards. In outline these are the main features of a school plant constructed along the lines conducive to health:

1. Regular class rooms, laboratories, shops, etc. should be supplied with 30 cubic feet of fresh air, per pupil, per minute.
2. The temperature of the class-room should be maintained at from 65 to 70 degrees.
3. An air humidity of 50% is desirable
4. Window space should closely approximate 20% of the floor area.
5. The color scheme of the walls and ceiling should be such that eye-strain is reduced to a minimum.
6. Desks should be arranged to minimize eye-strain and bad posture. Adjustable desks or movable chairs are desirable.

7. School room air should be kept as free from dust as possible.
8. Toilets, drinking and washing facilities should be easily accessible and be kept in sanitary condition. Drinking water should not be in toilets.
9. Playground, athletic fields, and gymnasium should be adequate enough to meet the needs of all pupils of the high school.
10. Provision should be made for periodic inspection by qualified authorities of all school premises to insure their being kept in sanitary condition.

Again, in the effort to make the pupil's environment as healthful as possible, teachers and janitors should be required to show a clean bill of health and to give evidence of having an understanding of and sympathy with health measures for the benefit of the school child. No teacher should be hired who does not first present to the medical inspector a health certificate from a reputable physician. This physician might be the health inspector himself. Janitors, too, should give a health certificate showing themselves to be free from infectious diseases, and measures should be taken to make sure that they understand and will do their part to carry out the school health program.

Along with a health-promoting school plant should go a healthful home environment. The physical education department should, not by officious interference with the prerogatives of the home, but by genial and mutually-helpful co-operation with the home, try to get for the high school pupil as healthful a home environment as the circumstances, financial and otherwise, of the parents will permit. Good ventilation and heating, lighting and color-schemes, etc. are as important, if not more so, in the home as in the school-room. Besides that, the home has much to do with the development of emotional habits, vital health habits such as cleanliness, and with feeding and clothing the pupil. The home should expect to receive as much help as possible from the experts hired with public funds. Both teachers and parents should realize fully that they are primarily interested in the same problem, that of raising the high school pupil from adolescence to full maturity. The physical director, through participation in parents-teachers associations, mothers' clubs, etc., and through personal visits, should establish the most cordial relations with the homes of the pupils in order that the common health problems of the home and the school may be best worked out.

And finally, in order that the most may be made out of

the child's native equipment, a careful study should be made of his native equipment in order that everything that is done for him is done intelligently. This means, for the high school pupil, as far as the physical education department is concerned, a thorough physical examination of all pupils entering school for the first time. Pupils just entering high school or pupils entering from some other school should bring with them a health certificate from the school, grammar or high, previously attended, but this should not be a substitute for the examination given to each student as he enters for the first time. It would merely act as a temporary substitute, until the pupil could be given the regular examination. Not all pupils need be examined by the school physician, however. Some parents may prefer to have their children examined by the family physician; usually there should be no objection to this procedure. In the New York City system, parents are given a written notice that a physical examination report must be filed within a month after the beginning of school. Failing to receive such a report, the school then assumes the responsibility of giving the examination. Parents pay for the examination by the family physician, but the school physician's services are free. However it is done, the pupil's physical

needs should be thoroughly diagnosed, in order that his program may be consistent with his capacity. Such a thorough examination would include diagnosis for contagious or infectious diseases, for physical defects, and for mental defects. It should cover everything that can be taken as an index to the child's health and the results recorded on a standard, permanent record sheet. Such sheets have been worked out by almost every investigator into the health of school children. The following are typical:

Department of Health, City of New York

Physical Record of_____Sex_____ Born_____

Nationality of father_____Mother_____

No. in family_____Children_____No. of birth_____

History of measles_____Scarlet fever____Diphtheria__

Pertussis_____Pneumonia_____Grippe_____

Date of examination_____In school_____

---

1. School year 1 2 3 4 5, etc.
2. Term 1 2 3, etc.
3. Class
4. Revaccination
5. Diseases during term

6. Date of physical examination
7. Height
8. Weight
9. Nutrition
10. Anemia
11. Enlarged glands
12. Nervous diseases
13. Cardiac diseases
14. Pulmonary diseases
15. Skin diseases
16. Defects orthopaedic
17. Defect of vision
18. Defect of hearing
19. Defect of nasal breathing
20. Defect of palate
21. Defect of teeth
22. Hypertrophied tonsils
23. Adenoids
24. Mentality
25. Conduct
26. Effort
27. Proficiency
28. Treatment necessary [1]

1 Medical Inspection of Schools, Gulick and Ayers, pp.85

Physical Record (Hoag and Terman)

1. School year 1 2 3 4 etc.
2. Examination and results
3. Dates
4. General appearance
5. Nutrition
6. Nervous disorder
7. Eyes
8. Ears
9. Nose
10. Throat
11. Teeth
12. Skin
13. Heart
14. Lungs
15. Neck Glands
16. Vaccination
17. Visits of nurses
18. Reply to notices 1

In addition to the examination suggestions given above, Whipple suggests the following:

1 Health Work in the Schools, Hoag and Terman, page 31

1. Height--standing and sitting
   A. Tools----stadiometer and vernier caliper
   B. Table of norms for ages 5.5 to 18.5, page 53
2. Weight
   A. Tool---anthropomorphic scales
   B. Norms, page 58
3. Diameter of skull--correlation between size of head and general intelligence
   A. Tool--head calipers
   B. Norms, 63, 64, 65
4. Girth of skull
   A. Tools and norms, page 67
5. Tests for Physical and Motor Capacity
   A. Vital capacity--lung capacity and breath capacity
   B. Strength of grip
   C. Strength of back
   D. Strength of legs
   E. Endurance of grip
   F. Quickness of movement----tapping
   G. Accuracy of precision of movement--aiming
   H. Accuracy, precision, or steadiness of movement--tracing.
   I. Steadiness of motor control--involuntary movement

J. J. Visual acuity--testing for myopia, astigmatism, etc.

K. Balance of eye-muscles--heteropia

L. Color-blindness

M. Discrimination of brightness

N. Etc. 1

Much of the material contained in the last table is evidently for the purpose of testing the mental equipment of the pupil. As has been suggested, such tests will probably be enough for pupils who are suspected of having nervous ailments. Others can be judged by their regular school marks and by mental intelligence tests which are usually given in any good high school. It would be impossible and impracticable to give such tests to every high school pupil. But the school should be prepared to give them if it is necessary to get to the underlying causes of any pupil's physical or mental defects.

After, and only after a thorough physical diagnosis, should the pupil's regular program be made out. For the great majority, this would mean no interference with scheduling of courses as they are now scheduled, but with some it would mean more careful scheduling in the interests of the pupil's health. After such a careful diagnosis, there could

1 Mental and Physical Tests---Whipple

be an intelligent correlation of his physical and mental work. The book worm will need to be stimulated to enter athletics or some other vigorous physical activity in order to prevent him from wearing himself out physically and to broaden his interests; the would-be professional athlete should be curbed in his desires and be held strictly to eligibility rules for athletic contests, from the standpoint of scholarship. The mental examination would suggest what need be done for these special cases. Special defects like flat feet, weak hearts, weak lungs, etc. Should be handled by means of special classes under the direction of teachers specially trained for this work, wherever the school is large enough to justify such action. In small schools all classes of defectives will have to be placed in one class and handled as individual cases. Cases of defective sight, hearing, teeth, and breathing should be referred to the school ~~physician~~ clinic or through the parents to regular physicians or specialists. Cases of malnutrition and of unhygienic clothing or undesirable habits can be handled by cooperation with the home. In short, whatever the defect, an earnest effort is made to correct it; whatever the physical need, the physical education department will in some way

try to meet it; whatever the physical capacity or potentiality it will be the business of the physical education department to stimulate a normal, healthy development. It will be as impossible, from the crude material, to develop a first-class citizen, without understanding the material out of which the citizen is to be developed, as it would be to construct a good bridge without understanding quality of steel necessary, length of span, etc. Neither should be built haphazardly.

Not only should this first examination be given, but yearly examinations regularly afterward for normal pupils and special examinations, whenever necessary, oftener than yearly for special cases. A careful set of records must be kept so that it can be determined what progress is being made and an effective system of follow-up developed for cases that require special treatment, whether such treatment is given by the school, by outside physicians or specialists, or by the home. Careful personal advice must be given to each child examined and found defective and parents notified of defects and advised as to treatment so that the case may be handled as an individual case. Examinations and records are useless unless individual advice, treatment, and follow-up

are connected with them.

In addition to the first examination and the regular yearly examinations, a daily inspection should be given by the regular class-room teacher during the first period or during the advisory period. While teachers are not usually qualified to give such tests they can soon be trained to detect common symptoms of ordinary contagious or infectious diseases. Symptoms of common diseases can be furnished by the medical inspector. The New York Syllabus gives a number of symptoms of physical ailments easily detected by the average class-room teacher and of sufficient inportance to send the child to the school physician. Some of the most common are:[1]

1. Sore throat
2. Ear ache
3. Running nose
4. Sore eyes of any kind
5. Fever
6. Flushed face without normal cause
7. Vomiting
8. Frequent coughing
9. Pallor
10. Acute pain
11. Mouth breathing
12. Headaches
13. Easy fatigue
14. Puffiness of face and eyes
15. Chills

1 General Plan and Syllabus for Physical Training in the Elementary and Secondary Schools for the State of New York, No. 631, 1917

It is plainly seen from the nature of this list that the function of the teacher is not to treat any of the common ailments nor even to take the responsibility for fixing the name of the disease. The teacher simply finds something wrong and reports the case to the depart of medical inspection.

It might be urged, as it often has been urged, that such a program of medical inspection constitutes a violation of the prerogatives of parents and unduly interferes with the personal freedom of the high school pupil. The answer to the first objection is simply that it is always urged that the rights of parents are interfered with when the school takes over some function which the parent is either unable or too careless to attend to for the good of the future citizen. Such was the argument against compulsory school attendance, against quarantine which kept the child with contagious diseases away from school, and so on. The second objection can hardly be tenable if the school physician is a regularly licensed physician; there can be no more embarrassment from a personal examination at the hands of the school physician than at the hands of any other physician. If tact is used and the parent is educated to the fact that medical inspectn

is for the good of the child, there should be little real opposition to medical inspection in schools, on this ground..A third objection is that of the necessity of paying out of the public treasury, for services to the child which the parent ought to render. Again the objection is the same as that used in the past about educating the child at public expense. If the home, because of manifold other interests and because of increasing inability due to modern complex modes of living is unable to care for the health of the child completely the school ought either to take over this function entirely or to cooperate with the home in so far as it is necessary. Society has a right to demand that the child be developed into as good a citizen as it is possible to make him, and if this includes the supervision of the child's health, then the school ought to take over this function if it is not already taken over by some other agency. That the growing citizens have not been cared for in the past as they should have been cared for is shown by the Draft Report of the Provost Marshal General in 1917. As has been widely advertised, the percentage of physical defects in that section of the American population which ought to constitute the "flower of America's manhood" was thirty out of every

hundred. This means, too, only defects that were serious enough to disqualify men, under rather generous physical examinations, for military service. It is easily possible that if minor defects were taken into account the percentage might mount up to forty or even fifty. And this out of the choice section! What would be the percentage above or below 21 to 30 years?

That these defects would have been largely preventable, is easily seen from a study of the Marshal's report:

Causes for Physical Rejection	Number	Per cent
1. Total number of cases of physical rejection considered	10,258	
2. Alcoholism and drug habit	79	0.77
3. Physical undevelopment	416	4.06
4. Teeth	871	8.50
5. Blood vessels	191	1.86
6. Bones	304	2.96
7. Digestive system	82	.80
8. Ear	609	5.94
9. Eye	2224	21.68
10. Joints	346	3.37
11. Muscles	66	.64

12. Respiratory	161	1.56
13. Skin	118	1.15
14. Flat foot	375	3.65
15. Genito-urinary (non-venereal)	142	1.39
16. Genito-urinary (venereal)	343	3.27
17. Heart disease	602	5.87
18. Hernia	766	7.47
19. Mentally deficient	465	4.53
20. Nervous diseases (gen. and local)	387	3.77
21. Tuberculosis	551	5.37
22. Underweight	163	1.59
23. Ill defined or not specified	93	.91
24. Not stated	809	7.89

While there seems to be no way of determining how much of this deficiency could have been remedied or to what extent reduced, through a system of medical inspection in the schools, there is not a single type of defect that could not be handled to the benefit of the child. Of course, it could not so have been handled by private physicians at the request of parents, but it wasn't. Hence the need of a more effective system of medical inspection in the high school ought certainly to do its part in meeting this need. If there

were a good system of medical inspection throughout the school system, from the kindergarten to the university, there should be no need for such a disgraceful state of health affairs in our nation.

Physical Activity---Exercise

As already explained, physical activity or exercise is not to interpreted as meaning any particular set of exercises or system of physical education. It is to be interpreted in the broadest sense--an adequate program will choose the best that has been developed in any system to meet some specific need. If Swedish gymnastics are introduced into the program, the instructor will know for what specific purpose he is introducing this system; namely, for corrective purposes. If athletics, as commonly understood, is introduced, the purpose for which it is introduced will be just as fully understood. Nothing will be used unless it has a specific purpose which cannot be served by any other form of exercise; everything and anything will be ready for use if such use will best serve the interests of any student or group of students. The program should be broad enough to meet the needs, capacities, and interests of all. It will meet the needs of the subnormal, the supernormal,

and the average student. Through its special classes and athletic competitions, it will be fitted to the capacities of every type of student. On the principle that the interest in physical welfare must be made a life-long interest, the program must be varied enough that the student may find a permanent physical activity interest. Physical education then, is not interpreted here as meaning any one type of activity, but includes the best in every type of activity.

The minimum essentials in the way of space and equipment for such a program are:

1. A gymnasium 45 ft. by 70 ft. (Suggestion of the National Committee on Physical Education) Two such gymnasiums, in larger schools, one for boys and one for girls, are much to be preferred, but could probably not be considered as minimum. 1
2. Playgrounds or athletic field space
   A. 5 to 12 acres 2
   B. 50 sq. ft. to 100 sq. ft. per school pupil 3
   C. 150 sq. ft. per pupil for junior and senior high schools 4

1 Score Card for City School Buildings, Strayer and Englehards, pp. 12

2. Building Score Card, Strayer

3A School Building Program for Cities, Englehardt, pp. 71

4 Phys. Educ. in Secondary Schools, Bul. No. 50, pp. 13

3. Equipment for gymnasium and playground, the minimum essentials set up by the National Committee [5]
4. The gymnasium and the playground or athletic field, to be of real value, should be well equipped for a wide variety of games and activities. It can be so equipped at a small expense. Hundreds of games can be played with very little equipment, if the space is available. The old type of gymnasium is fast giving way to the modern gymnasium with its simple and inexpensive equipment and accompanying suggestion of play. Formal work is used only for special purposes; play should occupy by far the major part of the physical education period.

In the field of physical activity, it cannot be too strongly ~~urge~~ emphasized that physical education the high school is for all and equipment and arrangement of program should be based on this principle. It is not for a few pampered pets who are chosen to represent the school in athletic contests with other schools. In a program broad enough to include every boy and every girl in the high school, athletics will still have its place just as will any other type of physical activitiy. Athletics will always be worth while

5 Physical Education in Secondary Schools, Bul. No. 50, pp. 12

as a means of giving the physical supernormal a chance to test his powers, as a means of advertising the school, and as a means of creating school spirit and school homogeneity, but in an adequate program, athletics must recede from its dominating position in favor of activities in which the whole student body takes an active part. As has been frequently repeated within the last few years, athletics at present gives physical training to those who least need it and neglect the great majority. The process might well be reversed so that the present athletes would be on the bleachers applauding the former bleacherites. The time must go when the school spends fourteen hundred dollars for equipment for the foot-ball team and fifty dollars for equipment for the regular physical education classes.

What must be the essential features of a program which will thus serve the interests of all? They may be summarized as follows:

1. A two-minute between-class relief or drill period
2. Sixty minutes a week for drill, corrective exercise
3. Special class or classes for defectives.
4. Three hours a week spent in supervised recreational or athletic exercise
5. A variety of recreational or athletic after-school

activities wide enough to interest practically every boy and every girl in the high school.

6. Recognition by the school of any healthful, well-planned activity in order to stimulate out-of-school activity for those who for financial or other reasons are unable to participate in after-school activities.

The between-class period has been variously interpreted. The New York Syllabus requires a minimum of two minutes and suggests an extension to four or five minutes of definite setting up drills. The Physical Education Commission of the N. E. A. speaks of "regular recess periods and setting up exercises between class periods." The California Manual in Physical Education, 1918, suggests a "relief period" between classes. Perhaps the California system offers the best solution for the between-class period. It says:

> "This period is distinctly a relief period. It is designed primarily, to counteract the detrimental influences of sedentary, desk mental occupations. . .Gymnastic or setting up drills may be given if the individual teacher is skillful enough to handle drills successfully to get physiological results, and if local conditions make them the only exercise possible. But formalized exercises to

command are fatiguing. A brisk run across the school yard is more valuable than a drill incorrectly conducted." The best that could be required as a minimum would be an informal two-minute relief period between classes.

Sixty minutes a week for drill and corrective exercises is the minimum requirement in the way of drill of the New York state department. The California state department is not so definite as to time, but says that "tactical" and calisthenics drills , may, and should be taught." The National Committee mentions gymnastics with other types of activities. The old type of education almost entirely of gymnastics, calisthenics, and setting up exercises; the tendency in some quarters to-day is to eliminate these entirely. Probably the middle ground is the most sensible course just yet. Gymnastics, calisthenics, and setting up exercises still have value from the standpoint of discipline and organization, development of good posture, alertness and ready response to command, etc. They are also valuable from the standpoint of handling large crowds at a time. Finally, in the crowded conditions of modern life, and considering the fixing of habits throughout life, training needs to be given in some form of exercise that the mature can use after school days are over. Foot-ball, basket-ball

soccer, base-ball, and other school athletics are splendid forms of exercise, but they fall down in this one respect: they are seldom followed up in later life. Some form of calisthenics or setting up exercise, that can be used in living room, bath-room, or study, at home or traveling still needs to be retained in the high school curriculum in view of the needs of the future citizen. This value, then, of the old form of physical education, together with the other values mentioned, perhaps justifies this minimum requirement of sixty minutes a week for such drill, preferably in two thirty-minute periods.

Somewhere in the program, there must be provision for special cases of disability like flat feet, spine curvature, weak hearts, weak lungs, etc. If the school is large enough, special classes may be organized for special types of disability; otherwise all such pupils must be placed in one class and be given individual treatment which will tend to alleviate or cure the trouble. Every pupil who is found to be suffering from deficient eye-sight, hearing, from enlarged glands or tonsils, and similar curable or correctible defects should, of course, be given treatment either by the school physician, nurse, or by a community

specialist. Parents will always be notified of such defects and the school and the home will cooperate in seeing that the child is properly treated. No school could have fulfilled the requirement of the minimum essentials that did not take care of its special cases of disability. Such pupils may or may not be placed in the special classes, temporarily or permanently, according to the nature and seriousness of the case.

Valuable as the regular, systematic drill, calisthenic, and corrective exercise suggested above is, by far the most valuable form of exercise for the great bocy of high school pupils is play. Formal exercise is fatiguing even when taught under the best of conditions. Supervised play of the right sort is not only invigorating and body-building but is recreational and relaxing at the same time. Exercise that is entered into joyfully and spontaneously is more valuable than formal exercise. Three hours a week, then, should be devoted to this type of recreation and play, and should be required as a minimu, although a pupil who is participating in regular after-school sports under careful supervision and regularly conducted for a minimum of four four-hour periods a week, should be excused from the regular ~~afterxxschool~~ recreation periods and assigned to study

during the period of activity.

If the minimum requirement of floor and field space suggested above is provided, the after-school recreational and athletic period would be the most important of the day. Here the inter-class, inter-advisory, inter-club, and inter-school activities would be held. Schedules of every type of contest would be continually in progress, so that a large group of students would be drawn out to the field or into the gymnasium. Here track meets which included every member of the class, advisory, club, or school would participate and establish class records as well as individual records. Here students could compete against well-established norms for intra-mural contests. In every possible way attempts should be made to make after-school activities, on the broadest scale, popular. Sport for sport's sake and for health's sake and not sport for the sake of winning at any cost should be the dominating note in this type of activity. Regular athletics, as usually interpreted would be a part of this program, but would be broadened in scope so as to include every one whenever that would be practicable, although, as suggested, for the sake of the fun of it and for the sake of keeping up interest, there would

still be the regular inter-school contests. The management of athletics will be considered later.

Finally, the high school should recognize well-regulated, well-planned out-of-school activity. In almost every high school, there are boys and girls who belong to Y. M. C. A. and Y. W. C. A. classes, to church clubs, hiking clubs, Boy Scouts, Campfire Girls, and similar physical activity groups. Usually classes under such organizations are under competent leadership. In later life, it is under the leadership of these and similar organizations that the adult man and woman will get their recreation and exercise; there seems to be no valid reason why the high school should not recognize such activity if proof is given that it is carried on systematically, regularly, and over a required period of time. In fact, the high school ought to cooperate with and take the leadership in any type of physical activity which will tend to arouse and create permanent interests for some future citizen. Even walking, rowing, bicycling, horse-back riding, and similar types of exercise should be recognized and credited whenever it is possible with certainty to determine the nature, value, and length of time spent. Every effort should be made to im-

press upon the boy and the girl the fact that exercise is for every one, young and old, and should be carried on systematically and regularly throughout life.

Hygiene and Sanitation

Any adequate physical education program for high schools must look toward the future. The high school pupil is approaching maturity and must soon take the complete responsibility for his own health. He will need to know the fundamental principles upon which health is maintained. This means that the high school must give instruction in hygiene and sanitation. Such instruction would include personal, schook, home, and community hygiene, and in the order given might very well be given in each year of the four-year high school, or it could ~~continue~~ commence with the last year of the junior high school and continue through the senior high school. This order would be progressive and would gradually lead from the personal to the broader social aspects of living. Under personal hygiene should come such topics as the care of the hair, teeth, nails, shoes and other clothing, eating, drinking, waste elimination, exercise, etc. School hygiene would include care of desks, books, toilets, classrooms, grounds, means of preventing the spread of disease,

such as spitting, coughing, and coming to school with contagious diseases, the value of good school ventilation, heating, lighting, etc. and the importance of cheerfulness, industry, and self-control. Home sanitation would deal with heating, ventilating, sleep, care of the sick, garbage disposal, clean premises, and the value of a happy cooperative spirit both at home and in the community. Community hygiene and sanitation would include disposal of waste, means of combating disease, life protection, care of dependents, and the use of health-promoting facilities such as parks, playgrounds, resorts, hospitals, etc. The list is not exhaustive but suggests that hygiene as it should be taught in the high school would be of a practical nature and would aim to give insights, attitudes, and habits with regard to health. By means of health clubs, clean-up campaigns, opportunity to act as health officers, and other similar devices students should be given opportunity to develop real habits. Probably score cards which would measure personal cleanliness and health could be devised and the pupil's mark could be partly determined by his score on this card. His mark in school, home, and community hygiene might be partly determined in the same way. If he is given the opportunity to

do something, the danger of developing priggishness towards home and community methods might be avoided, and the pupil's efforts enlisted toward effective community cooperation in health matters.

Social and Civic Training

That physical education in general and athletics in particular develop moral traits of character valuable both to the individual and to society is believed by almost every physical education student or enthusiast. Probably more true is the belief that physical education activities may or may not develop such desirable traits according to the way in which they are managed. Many high schools have actually found athletics harmful rather than beneficial. It is usually found, however, that athletics and other types of physical education can be made a real force in the development of good character if managed with sympathy and tact. Physical education is not alone responsible for citizenship training; it acts merely as a cooperative agent with the other activities of the school curriculum. But it has a big opportunity and a big responsibility which must not be overlooked if it is to serve its purpose to the fullest extent. The personality and insight of its teachers will determine

how great shall be its part in citizenship training. The school must see to it that it gets the right kind of teachers. The type of teacher will be discussed under administration.

Some character traits for which the physical education department ought to be held responsible as a cooperative department in high school education are good sportsmanship, fair play, value and habit of cooperation and team play, cleanness of speech and action, loyalty to team, school, and community, initiative and leadership, obedience to legally-constituted authority, respect for elders, courtesy, physical and moral courage, self-control, coolness of judgment.

One of the most suggestive studies along this line is that made by Eastwell in the Teachers College Record, Vol. 20, 1920. Here character traits are analyzed and by means of specific questions and by assigning a specific value to each affirmative answer it is possible to score a pupil on character. The determination of the score value of each answer was determined by a compilation of a great number of judgments of teachers, parents, and members of college departments of education. A student scored on this basis could have a chance to learn his score and to watch his own development. The main topics, under which are many specific questions, necessarily omitted, follow:

1. Takes care of his health
2. Keeps a good posture
3. Is orderly
4. Exercises thrift
5. Is prompt
6. Thinks clearly and purposefully
7. Has a sense of humor
8. Is refined
9. Is characterized by helpful initiative
10. Is self-reliant
11. Exercises self-control
12. Lives up to the traditions of good sportsmanship
13. Stands for fair play
14. Is courageous
15. Is honest and truthful
16. Is trustworthy
17. Has a sense of civic responsibility
18. Is obedient
19. Is generous
20. Is courteous and considerate
21. Is cooperative
22. Is broad-minded
23. Is loyal
24. Has a fine sense of appreciation and seeks to express it.

This list and the list suggested above suggests the minimum essentials for which the physical education department must be co-responsible. While physical education cannot single-handedly develop these traits, it can and must do all within its power to aid in their development, and to see that the student, athlete or otherwise, lives as a good citizen according to some such standards while he is a member of a physical education class or team.

Administration

The administration of such a system for high schools will naturally require a larger view of the scope and purposes of physical education than is usually held by school administrators. Physical education for all on such a scale will require more teachers and better teachers, school nurses, aid from physicians at school expense, and active cooperation on the part of the home. This will mean increased expenditures, but the fact that wherever such additions to health programs have been introduced, they have stayed is some proof that such expenditures are justified. It is not possible to figure the value of such expenditures to the pupil any more than it is possible to figure the money value of any other

school aid which he receives or to figure the value of the benefit to the pupil and to society. But common judgment would say that any increase in the physical efficiency of the child would certainly strengthen the foundation on which all mental achievement must necessarily be built and reasonable expenditures are therefore justifiable.

The first requirement of the program, then, is a new type of physical education director--one with vision, insight, and ideals. The type of man suggested by Dr. Hastings for a state univereity seems to be, as often as it would be possible to secure him, the type of man needed for the high school. He says:

> "Provide a man as director in a state university who is thoroughly grounded in the subject, prepared by a regular training school for physical directors in all the branches and detail of his profession, not a gymnastic director, an athletic director, nor a medical director, but a man, school-trained, who combines the essentials of all these lines of work. He may not, often cannot, carry all of these; he may require as assistants, an athletic instructor, an examining room assistant, and a gymnastic instructor, but he should supervise them all personally." 1

1 A Manual of Physical Measurements, William D. Hastings, Ph. D., Chair of Anthropometry and Physical Training, International Y. M. C. A. Training School, Springfield, Mass.

Again, in stronger vein:

"An idea is abroad that any one who has been to some great university, and who can do a handstand or a back somersault, who can run a hundred yards, pole vault, or play foot-ball, is a suitable person to guide the physical training of youth. There is another view that any one with a medical degree, who has studied the mechanism of the human is par excellence the man to put at the head of this sort of work. Both views display an entire misapprehension of the breadth and importance of the work. Even the physician is usually not prepared at for prescription of exercise, not to say further in the exercises themselves or in the principles which underlie the whole subject of physical training. The fields of medicine and physical training are entirely distinct and demand a distinct preliminary training. Between the two professions there should be the closest cooperation, but there is no need that one should tread upon the other, nor the purpose and scope of the one be confused with that of the other. . .It is just as important that a physical director be thoroughly trained in a regular professional school as that a physician be required to attend medical college and present a diploma before he can be licensed to practice."

The present basis upon which high school instructors in physical education are hired also needs to be changed. Coaches and instructors should be regular teachers and should have had training which will make them effective in helping to carry out in every respect the ideals and policies of high school education. Dr. Hastings thinks that they should receive thorough training for their work. He says:

"Provide teachers of the state through a special collegiate course in the state university and normal schools, and unify the work of the state. . . In order to provide carefully trained teachers in physical training throughout the state as demand is made for them, and also to secure a measure of uniformity in methods of training, a two-or three-years' course in physical training should be introduced into the curriculum of the state university and the state normal schools."

Besides requiring special training for the head of department and for the regular teachers, there is a need for special teachers who know how to care for special cases such as flat feet, spine curvature, lung and heart trouble, etc. All teachers will need such training, of course, because many of them will go into small high schools where the head of department is also regular and special teacher. But large high schools will be able to afford specialists and

should be able to get them at the universities and normal schools. It is time that we changed our present policy of going out for a good track man, a good foot-ball coach, etc. who has had no other training than that on the college track team.

Medical inspection in high schools will require the addition, where such addition has not already been made, of the services of a physician and of one or more nurses, according to the size of the high school. The ideal plan, where the high school is large enough to justify it, would be one in which a school physician is hired on full time. That, however, seems to be out of the question since it would hardly be possible to pay such a man enough to devote his entire time to this work. In most cities in the United States and in England the school physician is hired on part time and is paid for his services at so much per examination or so much per day, month, or year. Under the present system it would seem impractical to suggest as a minimum requirement that high school physicians be hired on full time; investigations by Gulick and Ayers and by Terman seem to indicate that the best plan is to hire the physician by the month, for a school year of ten months. The average ~~time~~ ~~physician~~ physician can examine about twenty cases in a day.

Part of this time, however, he is going from school to school, so that his average would be only from twelve hundred to two thousand pupils per year. This method, too, is good from the standpoint of the difference in the size of high schools, since the expenditure can be adjusted according to the number of pupils and the physician hired only for the time actually necessary to examine the necessary number of pupils.

The nurse should be hired on the basis of her ability to handle from one thousand to twleve hundred cases per year, besides making home visits for purposes of cooperation with the home. In smaller high schools she can be hired by the whole school district and thus spend the proper percentage of her time between the elementary schools and the high school. Ordinarily, the major part of the examination and treatment of minor cases will be handled by the school nurse, leaving only examination of heart and lungs and such vital organs to the physician, and the treatment of serious ailments to him or to some other physician thru the cooperation of the parents.

In brief, then, the administration of this high school program would be carried out somewhat as follows:

1. Daily inspections for contagious or infectious dis-

eases by the classroom teacher during the first period, or by the advisory teacher. The New York system requires only a few seconds or at most a few minutes of time each day for this inspection. The teacher is furnished with a copy of ordinary symptoms and receives instructions and training from the head of the physical education department as to how to carry on these examinations. Each case of suspected disease or defect is reported on a regular form to the nurse, and the child is sent to the nurse for further examination and treatment.

2. Daily examination by the school nurse of cases sent to her. Notification, by the nurse, sent to the home, of any ailment or defect about which the home ought to know. Reference, by the nurse, if necessary, of the case to the school physician. Follow-up notices and visits by the nurse to the home to encourage the parent to have the child treated for defects, either by the school physician or by some other reputable physician. Examination, by the nurse, of cases of exclusion for contagious diseases before the child is allowed to re-enter school after a case of contagious illness. Notification, by the nurse to the parents, to the physician, to the board of health, and to the principal of

all cases of exclusion or re-admission. Regular reports of all cases handled, to the principal and to the school physician.

3. Yearly examination, by the school physician, of every pupil in the high school, these examinations to cover heart, lungs, or other vital organs that cannot be handled by the nurse or by members of the physical education department proper. Frequent examination and treatment of special cases, and advice to physical education department as to the type of exercise advisable.

4. Yearly examinations, by members of the physical education staff, under the direction and with the advice of the school physician, of height, weight, physical measurements, everything necessary to a complete diagnosis of the child's physical make-up, with a view to intelligent meeting of any of his needs either physical or from the standpoint of advise on the quantity and nature of his regular school program. Regular records kept of measurements, and notations made of treatment and results to be kept by the physical education department.

5. Instruction and advice from the physical education department to regular class-room teachers and to janitors with a view to intelligent cooperation on such questions as

lighting, heating, care of eyes, posture, etc. Printed advice and personal visits as often as practicable and nedessary, to parents, with a view to home cooperation. Use of posters, badges, and other devices for the purpose ofarousing interes and developing habits of cleanliress and health on the part of high school pupils.

6. Assignment, in physical education classes, of normal pupils to regular classes; special cases to be placed in special classes for individual treatment. Admission of athletes and other physical supernormals to contests only on condition of consent of head of physical department, school principal, school physician, and parent. Attempt made, on the basis of examinations, physical and mental, to fix the pupil's program, regular and in physical education, to his needs, capacities, and interests.

7. Faculty control of sports. There must be room in the program for athletics, but it seems that the time has arrived when these sports should be toned down somewhat. All inter-school athletic contests should be carefully supervised. Following are some of the rules that should govern such contests:

a. No student should be allowed to enter such contests

unless he has the consent of his parent, his principal, the head of department of physical education, and the school physician. This, of course, through the consent of the principal, would imply the taking care of his scholarship eligibility.

b. No system of training should cover more than six hours a week, for after school activities.

c. Manggement and organization of teams should be under the close supervision of the faculty. Student managership, under faculty supervision, should be allowed as far as possible, but should not cover handling of finances nor outlining of policies.

d. Overnight trips, except for final contests, are inadvisable as a general rule.

e. Every effort should be made to play the game for the sake of the sport to be gained from it. Good sportsmanship, courtesy, and other moral qualities should be emphasized over the spirit of winning the game at any cost.

f. At present, in spite of the tendency for women to enter athletic contests, it seems to be inadvisable for high school girls to compete in public. The high school girl is at a critical period when over-exertion under

the stimulus of crowd applause might prove dangerous.

8. Effort on the part of the physical education department to cooperate with all school agencies, with the home, the community, and with other outside agencies working for the physical welfare of the pupil. Effort to create permanent interests in physicalwelfare, through the creation of hiking clubs, community, games, etc., and through the use of a wide and varied program of physical education activities.

Costs

If a Board of Education has been in the habit of thinking of physical education in high schools as consisting only of athletics which might be expected to bring in some revenue, the proposed program will mean a considerable increase in expenditures, but if the Board has followed the trend since the war and has introduced physical education for all, this program will mean little extra expense. In principle, it should cost no more per pupil than enough to get a clear understanding of each pupil's needs and to meet those needs in so far as a high school could be expected to meet them. The actual cost would be somewhat as follows:

1. Head of department, $3000 to $4000. (Terman's suggestion) This man is held for professional standards and

the salary should be large enough to attract the right kind of man. In a large high school, there would be two heads of department, one for boys and one for girls. In a small high school, the one instructor for boys and the one for girls would each act as heads of their respective departments. The salary ought still to approximate that above, since country children are as much in need of expert attention as city children. (See Draft Report of the Provost Marshal General, 1917, Table 16)

2. Rugular teachers, $1200 to $1500. Salaries differ in different localities. This salary is based upon Cubberly's recommendation in his Public School Administration. One teacher, according to the report of the National Committee on Physical Education, should handle not more than fifty pupils per class, and should, according to the California Syllabus have three regular classes per day, with two after-school classes. If these recommendations are followed one teacher should be responsible for from one hundred fifty to two hundred pupils per day. Considering $1500 as the salary and 150 as the number of pupils each teacher should handle, the cost per pupil would then be $10 per pupil per year, or a little over five cents per pupil per day, for regular instruction.

3. School physician

A. Terman's suggestian: $60 to $80 per month for 10 months, 2 hours per day. This would be $600 to $800 per year.

B. Median of 80 cities investigated by Gulick and Ayers, $375 per year; range $0 to $2400 per year; mode $0 to $250; range of middle 50%, $575 to $118 per year.

4. School nurse, $70 a month for 12 months, or $840 a year. As a nurse could handle from one thousand to twelve hundred cases a year, the expense would be about seventy cents per child per year.

5. Since costs vary according to locality for the physical plant and since the school plant suggested is not different from what the present plant should be, it is not necessary to compute the cost of the school plant. Equipment would cost very little if any more than the present equipment, since it is remembered that itis suggested that less money be expended for the benefit of the many. Medical supplies and cost of treatment is difficult to determine. Gulick and Ayers figure the cost of caring for contagious diseases at about thirteen cents per pupil per year.

Looked at from the point of view only of increased expenditures, the proposed program might be considered too big a load to shoulder on to an already overburdened tax bill. In view of the need as shown by the war reports and by school reports by Gulick and Ayers, Terman,and others, and in view of the increased efficiency and of the real saving, in the larger sense, in money and lives which such a program would bring, it is not exhorbitant and should be considered as necessary to an adequate program. Anything which it is necessary to spend to lessen disease and death, if the money is spent wisely and honestly, should be considered a minimum expenditure for the high school. The need of an adequate physical education program and the value of such a program, financially and otherwise, is very well summed up by Inglis in his Principles of Secondary Education. His summary is as follows:

"The values of physical education in the secondary schod are universally recognized in theory and almost universally ignored in practice. Vital efficiency must always underlie and condition other forms of efficiency--social, economic, and personal. . . .

"(1) The annual death-rate for the United States is estimated to be between fifteen and eighteen per thousand of

population. Between one and a half and two per cent of our total population dies each year and the median age of death is approximately thirty-eight. It is estimated that approximately two-fifths of those deaths could be postponed by the application in a reasonable way and to a reasonable extent of knowledge now available.

(2) It is estimated that in the United States there are constantly about three million persons on the sick list. The application of available health knowledge in a reasonable way and to a reasonable extent could probably reduce this number nearly one half.

(3) The economic loss to society each year through deaths which could have been postponed is probably more than a billion and a third dollard. The loss of earnings annually on the score of preventable illness is probably more than a half billion dollars. When there is added to these figures the cost of medical care for the sick which might with reasonable precautions have been avoided, the total annual loss for the country is estimated at over two billion dollars--over one hundred dollars for each family in the country." 1

1 Principles of Secondary Education, Inglis pp. 642

Summary

The main features, then, of the minimum requirements of an adequate physical education program are as follows:

1. A full realization of the part to be played by physical education in helping to realize the objectives of secondary education.
2. Medical inspection in the high school for the purpose of keeping in good running order the human machine which has been entrusted into the care of the high school.
3. A program of activities which will meet the needs, capacities, and interests of every boy and every girl in the high school.
4. Administration of the program by men and women who understand the aims of education both from the point of view of their special subject and from the standpoint of secondary and other education in the bigger civic and social aspects.
5. The wise and honest expenditure of money enough to put this program into effect.

Bibliography

Administration

Rapeer, L. W. School Health Administration

Steven, E. Z. Medical Supervision in Schools

Athletics

Bancroft,and Pulvermacher. Handbook of Athletic Games

Ceouch, M. L. Technique of Track and Field Events

Collier, Price. The Ethics of Athletics, Forum, Nov. 1901

Faries, Randolph. Practical Training for Athletics, Health and Pleasure

Faunce, W. H. Character in Athletics, N. E. A. Proceddings, 1904

Gordon, M. K. School Athletics: What They Are--What They Should Be. N. E. A. Proceedings, 1908

Gordon, M. K. The Reform of School Athletics, Century, Jan. 1910

Hetherington, Clark W. Statement for a National Athletic Platform. Phys. Ed. Review, Nov. 1909

Moore, Harry. Keeping in Condition

Naismith, J. High School Athletics and Gymnastics, Chap. XVII of Johnston, C. H. (Editor) The Modern High School

Nichols, E. H. Competitive Athletics. Am, Phys. Ed. Review, Vol. XIV. pp. 589

Reilly, Frederick J. New Rational Athletics for Boys and Girls

Roessing, Mrs. Frank. Session in Athletics for Girls. Playground Proceedings and Year Book.

Wade, Frank B. On the Ethical Values of School Athletics. Educational Bi-monthly, Dec. 1900

Withington, Paul. Book on Athletics

City and State Manuals of Physical Education

California. Manual of Physical Education

Michigan. Physical Training for the City Schools

Newark, New Jersey. A Course of Study in Physical Training for the Elementary Schools

New York City. Syllabus on Physical Training

Philadelphia. Course of Study in Physical Training

Rochester. Syllabus on Physical Training

Gymnastics

Anderson, W. G. Best Methods of Teaching Gymnastics

Anderson, W. G. Light Gymnastics

Anderson, W. G. Manual of Physical Training for Boys and Girls

Bancroft, Jessie H. School Gymnastics, Light Apparatus

Bolin, J. What is Gymnastics?

Bolin, J. Why do We Teach Gymnastics?

Butterworth, H. How to Tumble

McCurdy, James H. Hygienic Dumb-bell Drills

Rath, Emil. Apparatus, Track and Field Work for Women

Skarstrom, William. The Teaching of Gymnastics

Stecher, W. A. Educational Gymnastics

Y. M. C. A. Graded Gymnastic Exerces, Cards

Hygiene

Allen, W. H. Civics and Health

Ayers, L. P. Open Air Schools

Bigelow, M. A. Sex Education

Bergerstein, Leo. School Hygiene

Dressler, F. B. School Hygiene

Exner, M. Rational Sex Life for Men

Gulick, Hygiene Series

Hill, Hibbert W. The New Public Health

Hoag, E. B. The Health Index of Children

Lyster, Robert A. School Hygiene

Lyster, Robert A. Textbook of Hygiene for Teachers

Offner, M. Mental Fatigue

Proceedings of the American School Hygiene Association

Proceedings of the various International Congresses on School Hygiene

Pyle, Walter L. A Manual of Personal Hygiene

Rapeer, L. W. Educational Hygiene

Terman, L. M. The Hygiene of the School Child

Measurements and Norms

Baldwin, B. T. Physical Growth and School Progress

Crampton, C. W. Physiological Age

McCurdy, J. H. Physical Efficiency Tests During Adolescence

Seaver, J. W. Anthropometry

Stewart, S. F. A Study of Physical Growth and School Standing of Boys

Whipple, G. M. Physiology and Hygiene of Adolescence

Hastings, William W. A Manual of Physical Measurements

Medical Inspection

Cornell, W. S. Health and Medical Inspection of School Children

Gulick and Ayers. Medical Inspection of Schools

Hoag, E. B. Health Index of Children

Newmayer, S. W. Medical and Sanitary Inspection of Schools

Out-of School Activity

Boy Scouts' Handbook

Campfire Girls' Handbook

Carpenter, W. S. Winter Camping

Corsan, G. H. At Home in the Water

Gibson, H. W. Camping for Boys

Goss, G. E. Life Saving

Kephart, H. Camp Cookery

Play

Adams, Jane. The Spirit of Youth and the City Streets

American Sports Pub. Co. Indoor and Outdoor Games

Angell, E. D. Play

Bancroft, Jessie H. Games for Playground, House, School, and Gymnasium

Bancroft and Pulvermacher. Handbook of Athletic Games

Bowne, W. Teaching Play

Brown, John. Outdoor Athletic Test for Boys

Burchenal, Elizabeth. Folk Dances and Singing Games

Burchenal, Elizabeth. Dances of the People

Burchenal, Elizabeth. American Country Dances

Chalif Textbook of Dancing. Vols. I and II (Chalif Normal School of Dancing, New York)

Coles, Alice M. G. Old English Country Dances

Crampton, C. Ward. The Folk Dance Book

Crawford, Caroline. Folk Dances and Games

Curtis, H. S. Education through Play

Curtis, H. S. The Practical Conduct of Play

Curtis, H. S. Play and Recreation

De Groot, E. B. Playground Equipment

Dier, J. C. Book of Winter Sports

Gilbert, Melvin Ballou. School Dances

Hinman, Mary. Vol. I Solo Dances (Clogs, Nursery Rhymes Folk Dances, Gymnastic Dances, etc. used for group purposes.)

Vol. II Couple Dances (Folk Dances)

Vol. III Ring Dances (Singing Games and Folk Dances

Vol. IV Group Dances (Folk and Interpretative)

Johnson, George E. What to Do at Recess

Johnson, George E. Education by Plays and Games

Kimmins, G. T. Guild of Play Book of Festivals and Dances

Lee, Joseph. Play in Education

New York City. Rules of the Public Schools Athletic League

Parsons, Belle B. Plays and Games for Indoor and Outdoor Games

Physical Education Review. 150 Gymnastic Games

Rath, Emil. I. Esthetic Dancing

II. Gymnastic Dancing for Girls and Womens Classes

Rochester, Rules of the Amateur Athletic Federation

Stecher, W. A. A Guide to Track and Field Work, Contests, and Kindred Activities

Wellesley College. One Hundred and Fifty Gymnastic Games

Wrightson, Hilda A. Games and Exercises for Mental Defetives.

Posture and Correction

Bancroft, Jessie H. The Posture of School Children

Lovett, Robert W. Lateral Curvature of the Spine and Round Shoulders

McKenzie, R. Tait. Reclaiming the Maimed

Posse, Nils. Kinesiology of Educational Gymnastics

Posse, Nils. The Chief Characteristics of Swedish System of Gymnastics.

Skarstrom, William. Gymnastic Kinesiology

Wide, Anders. Handbook of Medical and Orthopaedic Gymnastics.

14 DAY USE
RETURN TO DESK FROM WHICH BORROWED
EDUCATION LIBRARY

This book is due on the last date stamped below, or on the date to which renewed.
Renewed books are subject to immediate recall.

7 DAY USE	DURING
SUMMER	SESSIONS
NOV 1 1 1960	
NOV 1 1 RECD	

LD 21–50m-6,'59
(A2845s10)476

General Library
University of California
Berkeley